

IN THE MATTER OF

the Resource Management Act 1991

AND

IN THE MATTER OF

Notices of requirement for designations under section 168 of the Act, in relation to Te Ahu a Turanga; Manawatū Tararua Highway Project

BY

NEW ZEALAND TRANSPORT AGENCY
Requiring Authority

**ADDENDUM TO STATEMENT OF EVIDENCE OF DAVID JAMES DUNLOP
(TRANSPORT) ON BEHALF OF THE NEW ZEALAND TRANSPORT AGENCY**

25 March 2019

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INTRODUCTION

1. My name is **David James Dunlop**.
2. I submitted a statement of expert evidence on Transport ("**EIC**") on behalf of the New Zealand Transport Agency ("**Transport Agency**") dated 8 March 2019.
3. I have the qualifications and experience set out in my EIC.
4. I repeat the confirmation given in my EIC that I have read the 'Code of Conduct' for expert witnesses and that my evidence has been prepared in compliance with that Code.
5. In this addendum I use the same defined terms as in my EIC.
6. In this addendum to my EIC I clarify the travel distances / times for vehicles.
7. In this addendum to my EIC, I respond to points made in the expert evidence of:
 - (a) **Tony Keyte** on behalf of Meridian Energy Limited;
 - (b) **Mark Read** on behalf of Palmerston North City Council; and
 - (c) **Shane Vuletich** on behalf of Palmerston North City Council.

GENERAL

Clarification of travel distance and times

8. As noted in my response to panel questions dated 20 March 2019, whilst undertaking the assessment of travel distances and times for cyclists I identified an error in our assessment. The error concerned the length of Saddle Road used for the calculation of travel distance and time.
9. I have attached a revised version of the table provided as Appendix 1C of my Technical Report in **Attachment 1** to this addendum. The revised values reduce the travel time benefits of the Project for traffic currently using Saddle Road, however, the benefits for that traffic, and the overall benefits for the Project are still significant.

RESPONSE TO EXPERT EVIDENCE

Response to evidence of Tony Keyte

10. Mr Keyte states (paragraph 46) that the lack of an access to turbines from the eastbound carriageway prevents accessing and servicing of the turbines. I disagree.
11. As noted in my EIC, access is still available for eastbound vehicles via the Project route. Those vehicles would be required to perform a u-turn at the eastern roundabout and gain access from the westbound carriageway. As noted in my response to the Panel questions dated 20 March 2019 the travel distance and time will increase for some routes to and from wind farm sites compared to the existing situation.
12. However, I also note that it is my understanding that the underpass size has been increased and will now be designed to have interior dimensions of 6.0m wide and 4.9m high, which may accommodate some of the loads required for turbine upgrades and associated maintenance equipment. As such these loads would not need to use the Project to access the windfarm. However, access from the Project may still be required for some over-dimension loads.
13. I support the general intention of Mr Keyte's comments in paragraphs 48 and 52 about providing safe access to / from the proposed highway but note that it would not be unreasonable for Meridian to provide temporary traffic management to facilitate safe access for over-dimension loads. I expect they currently are required to do so for access via Saddle Road.

Response to evidence of Mark Read

Safety of cycling

14. Mr Read has a number of concerns about the safety of cycling on Saddle Road (and Pahiatua Track) including:
 - (a) The lack of shoulder width (paragraph 4.6);
 - (b) The presence of high speed traffic passing cyclists (paragraph 4.9);
 - (c) The future speed limit of Saddle Road (paragraph 4.8); and
 - (d) The One Network Road Classification ("**ONRC**") requirements (paragraph 10.4).
15. I note that Mr Read's evidence is primarily about the potential opportunity associated with the Project (specifically the case for a new pedestrian and cycle facility), rather than the need to address an effect of the Project.

16. Mr Read makes reference to the figure comparing cyclist crashes by shoulder width (Appendix B of his evidence) when commenting on the relative safety of Saddle Road (figure from Safer Journeys for People Who Cycle: Cycling Safety Panel Final Report and Recommendations, December 2014).
17. As set out in Jonathan Kennett's responses to the questions of the Hearing Panel, what this figure shows is that the majority of crashes occur where there is no shoulder, and there are significantly fewer crashes where there is more than a 1 metre shoulder.¹ Once shoulders become bigger than 1 metre, however, the figure does not show a significant reduction in crashes depending on the size of the shoulder.
18. Further, I understand that this figure covers the range of expected rural road types, from low-use local authority rural roads through to high-volume rural State highways. I would expect that in the case of Saddle Road, where the forecast future traffic volume is ~260 vehicles per day, that the lack of shoulder width is less relevant than on higher volume roads, as vehicles are less likely to meet a cyclist or a vehicle travelling in the opposite direction.
19. Mr Read makes reference to the potential for high-speed traffic on these roads passing cyclists, Mr Read also notes that he considers the alignment of Saddle Road tortuous. I do not expect that high vehicle speeds would be achieved on a tortuous alignment, and this has been my observation when driving the route. I also refer below to the expected future speed limit on Saddle Road.
20. Mr Read makes comment that the future speed limit of Saddle Road is unknown and should not be expected to remain at 60km/h. I am not aware of any information to indicate that the speed limit would change, and indeed I consider the current speed limit to be a safe and appropriate speed for the link regardless of the traffic volumes. I note that setting speed limits on Saddle Road is a Council function, so it is within the power of MDC and TDC to keep the speed limit at 60, or even lower it if they choose to. I consider that it is unlikely that the speed limit would change following the completion of the Project in the context of the safe system speed management framework / guidance.

¹ Appendix to memorandum of counsel on behalf of the Transport Agency dated 20 March 2019, page 18, paragraph 17.

21. I also consider that the removal of traffic from Saddle Road provides an opportunity to improve facilities for cyclists and encourage lower vehicle speeds within the existing road carriageway.
22. The ONRC classifies Saddle Road and Pahiatua Track as Arterial and Primary Collector respectively. The Customer Level of Service (**CLoS**) for these road classifications note the following for safety of vulnerable road users: *“Some separation of road space for active road users in urban areas”* and *“Active road users should expect mixed use environments with some variability in the road environment, including vehicle speed”*. I consider that the provision for cyclists on Saddle Road and Pahiatua Track is consistent with the ONRC CLoS.

Application of recommendations of the DBC road safety audit

23. Mr Read has a number of concerns about the application of the recommendations of the DBC road safety audit for cyclists, including;
 - (a) The recommendations of the audit with regard to cyclists (paragraph 5.17); and
 - (b) The benefits of the proposed roundabouts (paragraph 5.15).
24. Mr Read notes that the current design does not comply with the recommendation of the road safety audit with regard to cycle safety along the route. I note that the wording of the recommendation is to *“consider”* rather than must include, and I understand the recommendations were considered, which led to an increase in the width of the shoulder. As Mr Whaley explains in his evidence, there will be three more audits before the Project opens.
25. Mr Read notes that he does not consider that the roundabouts provide any benefit for cyclists. I acknowledge that statistics² indicate that the majority of fatal and serious cyclist crashes on rural roads occur on midblock sections. However, the same statistics show that crashes are much more likely to occur at priority intersections compared to roundabouts. Roundabouts are generally the preferred intersection form as part of a safe system as they reduce conflict points and vehicle speeds.
26. In the proposed design, the roundabouts will provide a transition from the Project to the adjacent network for all road users. For cyclists this includes providing a location for on-road cyclists to access some of the proposed facilities being provided as part of the Project (the access through the

² Safer Journeys for People Who Cycle: Cycling Safety Panel Final Report and Recommendations, December 2014

roundabout will be significantly safer than access would have been at a priority intersection that previously formed part of the Project). The roundabouts also will reduce vehicle speeds and increase driver awareness as they transition from a high-quality, high-speed road environment to a lower quality environment where cyclists will be more at risk.

27. While I acknowledge that the benefits for cyclists from the roundabouts are not significant, I consider that the roundabouts do provide some benefits for cyclists.

Standards and guidelines used

28. Mr Read has a number of concerns about the standards and guidelines used for the development of the design, including:

- (a) ONRC (paragraphs 5.11-5.12);
- (b) Austroads (paragraphs 5.22-5.26);
- (c) NZ Transport Agency Technical Memo TM-2503 (paragraphs 5.21, 5.33);
- (d) NZ Transport Agency Specification for Design, Construction and Maintenance of Cycling and Shared Path Facilities (paragraphs 5.30-5.33); and
- (e) Best practice (paragraph 10.2).

29. Mr Read refers to the CLoS for National roads and the portion specifically regarding active road users: "Network access and journey continuity for active road users (if present) mostly provided by separate space or physical separation". I note that there is limited journey connectivity for any users of an enhanced facility on the Project other than that provided by the Project, especially to key destinations such as Palmerston North and north or south on SH2. I consider that the proposed sealed shoulder constitutes a separate space. I also note that the CLoS uses the words "mostly" and "if present" which I consider provides flexibility in the event of a route not being considered likely to attract a high active user demand.

30. I acknowledge that Austroads provides best practice guidance for the design of roads in New Zealand. However, I consider that it is not always appropriate to provide best practice design for all road users especially when the demand is not expected to be significant (for example, there is no suggestion here that the Project should incorporate best practice design for safe use by pedestrians). Ms Downs has explained that the Transport

Agency has a statutory obligation to achieve value for money, and applying “best practice” irrespective of the context and predicted usage would not achieve that in all cases.

31. At paragraph 5.26, Mr Read quotes from paragraph 207 of my evidence, which refers to Section 4.8.9 Sealed Shoulders. As set out in my evidence, Section 4.8.9 states that, where shoulders are available for use by cyclists, the dimensions in Table 4.18 (which sits within a different section (Section 4.8.7) and relates to exclusive bicycle lanes in urban areas) should be used as a guide to the appropriate width of sealed shoulders. In his evidence, Mr Read then goes on to quote from additional guidance set out in Section 4.8.7, and suggests this is also applicable to the Project. I consider, however, that the further guidance quoted by Mr Read is not relevant to the context of Section 4.8.9, which refers only to specific dimensions in Table 4.18, and does not state that Section 4.8.7 as a whole is also appropriate for high speed urban arterials.
32. Mr Read raises concerns that technical memo TM-2503 has not been appropriately applied to the design of the Project. I note that the road is not intended to operate as a true four lane highway. As noted in my EIC and response to Panel questions (dated 20 March 2019) my understanding is that the crawler lane would be marked and signed as a slow vehicle lane in accordance with best practice, and general traffic would be encouraged to keep right. Because of this I consider that a larger width shoulder is not required to allow for vehicle breakdowns as the vehicle speeds in the slow vehicle lane allow for a reduced separation to a parked vehicle.
33. Mr Read notes that Specification for Design, Construction and Maintenance of Cycling and Shared Path Facilities includes references considering cycle network plans and parallel local roads for high volume roads. I consider that Saddle Road can provide a parallel local road as an alternative to the Project route. I also note that if the guidance from the specification was applied to Saddle Road then no shoulder width is necessary to provide for cyclists at any speeds given the expected traffic flows are less than 1,000 vehicles per day.
34. Mr Read notes that he does not believe the proposed shoulder provision on the Project meets best practice design guidance. I agree that the Project does not meet best practice design guidance in this instance, however, as noted above, I consider that it is not always appropriate to provide best

practice design for all road users especially when the demand is not expected to be significant.

General concerns

35. Mr Read has a number of other general concerns, including:
 - (a) Ignoring potential recreation user demand (paragraph 4.13, 5.16); and
 - (b) Vehicle speeds in the crawler lanes (paragraph 6.10).
36. Mr Read states that I have not included the estimated recreational users when considering the demand for cycling in my evidence. I have not included the recreational demand that Mr Read refers to because this demand is expected if there is a sealed path near the highway and is not the demand that would be expected for the currently proposed sealed shoulders.
37. Mr Read notes that he expects that there will be light vehicles travelling in the left lane at 100-110km/h. As noted above, however, my understanding is that the crawler lane would be marked and signed as a slow vehicle lane in accordance with best practice, and general traffic would be encouraged to keep right.

Response to evidence of Shane Vuletich

38. I am not an expert in matters of transportation economics, specifically the wider economics referred to by Mr Vuletich. However, I note that Mr Vuletich's evidence is primarily about the potential opportunity associated with a new pedestrian and cycle facility rather than the need to address an effect of the project.
39. Mr Vuletich refers to the benefit of a shoulder relative to an off-road facility for walking and cycling, however it appears to fail to acknowledge that a shoulder is not only provided for cyclists, so it is not a "one or the other" situation. A shoulder is still needed for emergency stopping, vehicle breakdowns, recovery space, etc. Cyclists could still use the shoulder, irrespective of whether there is an off-road facility and it is my prediction that some would, therefore I consider the Project should still provide a 2 m shoulder. The provision of an off-road facility is a further opportunity (at a further cost) and I agree that it would likely provide an economic benefit.
40. Mr Vuletich has adopted a factor of 92% (i.e. 8% better than average) to estimate the crash reduction factor associated with a 2m shoulder compared to the average state highway. Mr Vuletich has then applied that factor to the rate (30.0) of deaths / injuries per million kilometres travelled for cyclists on

all road types to calculate the expected crash rate on the proposed Project (27.6). I am unable to find the document referred to by Mr Vuletich but note that the crash rate of 30.0 seems to be the same as that found in Figure 1 of the Cycling Crash Fact Sheet prepared in 2017 by the Ministry of Transport.³ That figure (30.0) is for all road types urban / rural / State highway / local roads.

41. I note the figure comparing cyclist crashes by shoulder width referred to above⁴ noted that the vast majority of cycle crashes that occur on rural roads occur on roads with a shoulder width of 1m or less. It is also unclear whether Mr Vuletich's factor of 92% (i.e. 8% better than average) has taken this into account in his calculations. I consider that a 2.0m wide shoulder is significantly more than 8% better than the average State highway.
42. I do not consider that it is appropriate to apply the crash rate (30.0) for all road types to the calculation of an expected crash rate for the Project. The above document and the Safer Journeys for People Who Cycle: Cycling Safety Panel Final Report and Recommendations, December 2014 note that the proportion of cyclist deaths and serious injuries on rural State highways is 9% of all road types. I cannot replicate Mr Vuletich's calculations, but it appears he may not have taken this into account in his calculations.

David James Dunlop

25 March 2019

³ <https://www.transport.govt.nz/assets/Uploads/Research/Documents/647c44c080/Cycling2017.pdf>

⁴ Included as figure 1 in my response to questions of the Hearing Panel dated 20 March 2019, as well as Appendix B to the evidence of Mark Read.

Attachment 1 Travel Time Summary (Revised)

Route Data			Car Travel Times (minutes)			HCV Travel Times (minutes)		
Start	End	Route	Current	Proposed	Difference	Current	Proposed	Difference
SH3 West / Fielding (Intersection of Mulgrave Street and Hillary Crescent)	SH2 North (Intersection of SH2 and Pinfold Street)	Saddle Road and Oxford Road	19.2	12.3	-6.9	22.8	16.8	-6.0
	Woodville (Intersection of SH3 and SH2)	Saddle Road and Woodlands Road	18.2	10.8	-7.4	21.7	15.0	-6.7
Palmerston North (Intersection of SH3 and York Street)	SH2 North (Intersection of SH2 and Pinfold Street)	Saddle Road and Oxford Road	20.1	11.8	-8.3	23.7	16.3	-7.4
		Saddle Road and Woodlands Road	20.6	11.8	-8.8	24.5	16.3	-8.2
	Woodville (Intersection of SH3 and SH2)	Saddle Road and Woodlands Road	19.1	10.3	-8.8	22.7	14.5	-8.2
Palmerston North (The Square)	SH2 South (Intersection of SH2 and Mangahao Road)	Paihiatua Track and Mangahao Road	38.3	34.8	-3.6	44.0	40.8	-3.2
SH57 South (Intersection of SH57 and Paihiatua Track)	SH2 North (Intersection of SH3 and Woodlands Road)	Paihiatua Track and Balance Valley Road	28.5	14.9	-13.6	34.2	18.6	-15.6
	SH2 North (Intersection of SH3 and SH2)	Paihiatua Track and Mangahao Road	40.8	16.5	-24.3	48.4	20.7	-27.7